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# FINAL PROPOSED PLAN AND DRAFT MODIFICATION OF THE COLORADO HAZARDOUS WASTE PERMIT FOR THE ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE OPERABLE UNIT 15: INSIDE BUILDING CLOSURES

United States Department  
of Energy (DOE)

Jefferson County, Colorado

April 25, 1995

## DOE Announces the Preferred Alternative to Address OU15, Inside Building Closures

The responsibility for cleanup of the Rocky Flats Environmental Technology Site (Rocky Flats) (formerly known as the Rocky Flats Plant) has been assigned to the United States Department of Energy (DOE). The site is located north of Golden, Colorado in Jefferson County.

Cleanup at Rocky Flats is being administered under both the *Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)*<sup>1</sup> and the *Resource Conservation and Recovery Act (RCRA)*. The specific requirements and responsibilities for Rocky Flats cleanup are outlined in the *Interagency Agreement (IAG)* between DOE, the United States Environmental Protection Agency (EPA) and the Colorado Department of Public Health and Environment (CDPHE).

The subject of this document, which is a combination Proposed Plan and Draft Hazardous Waste Permit Modification, is Rocky Flats *Operable Unit 15 (OU15)*, Inside Building Closures. OU15 is composed of *Individual Hazardous Substance Sites (IHSSs)* 178, 179, 180, 204, 211 and 217. These IHSSs are small areas or facilities that were historically used to store or treat hazardous wastes and are located within large buildings at Rocky Flats.

The purpose of the Proposed Plan is to announce DOE's *preferred alternative* for OU15. The Proposed Plan serves as the basis for the *Record of Decision (ROD)* for OU15. The Draft Permit Modification is used to incorporate remedial action decisions at Rocky Flats into the site's RCRA Permit. CDPHE issues the Final Hazardous Waste Permit Modification once the remedial decision process is completed. The gray-shaded information boxes included throughout this document are provided to assist the public in their review and address some of the key items covered in the document.

The preferred alternative proposed in this plan for OU15 consists of the following actions: 1) Clean Closure under RCRA for all six of the OU15 IHSSs; 2) a No Action CERCLA decision for IHSSs 178, 211, and 217; and 3) a deferral of any actions at IHSSs 179, 180, and 204 until final disposition of their respective buildings. Clean closure under RCRA can be achieved since sampling results from all of the six OU15 IHSSs showed compliance with the clean closure requirements of the Colorado Hazardous Waste Permit for Rocky Flats. Closure certifications for the six IHSSs, signed by an independent registered professional engineer, have already been submitted to CDPHE.

The results of investigations performed at the six OU15 IHSSs have shown that no remedial actions are required to protect human health and the environment at IHSSs 178, 211, and 217 under their current use.

At IHSSs 179, 180, and 204, no remedial actions are required to protect human health and the environment as long as the Rocky Flats radiological control program as it exists continues to be implemented. There have been no documented releases outside the OU15 IHSSs and the IHSSs are maintained in a protective state for the individuals who work in and around them through the implementation of the Rocky Flats radiological control program.

### What is a Proposed Plan?

The CERCLA process for site cleanup is composed of a series of steps that begin with a preliminary assessment of a site (or operable unit) and end with cleanup and closure of the site. One of the intermediate steps in this sequence is the preparation of a Proposed Plan. The objective of the Proposed Plan is to provide an opportunity for public participation in the cleanup process. The public is invited to comment on the results of the investigations and studies completed and on the preferred alternative proposed to address the site. Responses to public comments are later provided with the Record of Decision, which documents the remedial plan chosen for the site. This Proposed Plan applies only to Operable Unit 15, Inside Building Closures.

### This Proposed Plan covers:

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<sup>1</sup> Words shown in *italics* on the first mention are defined in the glossary at the end of this Proposed Plan.

In accordance with the IAG and EPA guidance, a No Action decision is appropriate for a site or operable unit that is already in a *protective state*. IHSSs 178, 211, and 217 are located within Building 881 at Rocky Flats and are not in areas requiring postings or controls under the Rocky Flats radiological control program for worker protection. Therefore, a No Action CERCLA decision is appropriate for these IHSSs, since they do not require any actions or controls in order to be maintained in a protective state.

IHSSs 179, 180, and 204 are located within radiological control areas and subject to the radiological control program requirements. While the Rocky Flats radiological control program is in effect, these IHSSs require no further action under CERCLA. The radiological control program will remain in effect for these IHSSs until final disposition of their respective buildings.

#### PUBLIC INVOLVEMENT PROCESS

A public comment period will be held for the Proposed Plan and Draft Permit Modification. The public is also encouraged to comment on the Final Phase I *RCRA Facility*

*Investigation/Remedial Investigation (RFI/RI)* Report, which presents the results of the investigation conducted for OU15.

This public comment period will be from May 17, 1995 to June 30, 1995. A public hearing will be held on June 21, 1995. Comments on the Proposed Plan and Draft Permit Modification and the Final Phase I RFI/RI Report may be submitted orally or in writing at the public hearing. Alternatively, written comments, postmarked no later than June 27, 1995, can be sent to either of the addressees listed below.

Upon timely request, the comment period may be extended. Such a request should be submitted in writing to DOE, postmarked no later than June 27, 1995. FAILURE TO RAISE AN ISSUE OR PROVIDE INFORMATION DURING THE PUBLIC COMMENT PERIOD MAY PREVENT YOU FROM RAISING THAT ISSUE OR SUBMITTING SUCH INFORMATION IN AN APPEAL OF THE AGENCIES' FINAL DECISION.

#### MARK YOUR CALENDAR: OPPORTUNITIES FOR PUBLIC INVOLVEMENT

**Public Comment Period:** May 17, 1995 to June 30, 1995

**Public Hearing:** June 21, 1995

**Location:** Denver Marriott West  
I-70 at Exit 263, Golden

**Time:** 6:30 - 9:00 PM

**Send Comments To:**

DOE's External Affairs Office  
P.O. Box 928, Golden, CO 80402-0928

W. Carl Spreng, Geologist  
ph: (303) 692-3358  
Colorado Department of Public  
Health and Environment/HMWMD-HWC-B2  
4300 Cherry Creek Drive South  
Denver, CO 80222-1530

#### Information Repositories

The Proposed Plan, the RFI/RI Report and other documents are available at information repositories at the following locations:

Rocky Flats Public Reading Room  
Front Range Community College  
Level B  
3645 W. 112th Avenue  
Westminster, CO 80030

Colorado Department of Public  
Health and Environment  
Hazardous Materials and Waste  
Management Division - Bldg. B2  
4300 Cherry Creek Drive South  
Denver, CO 80222-1530

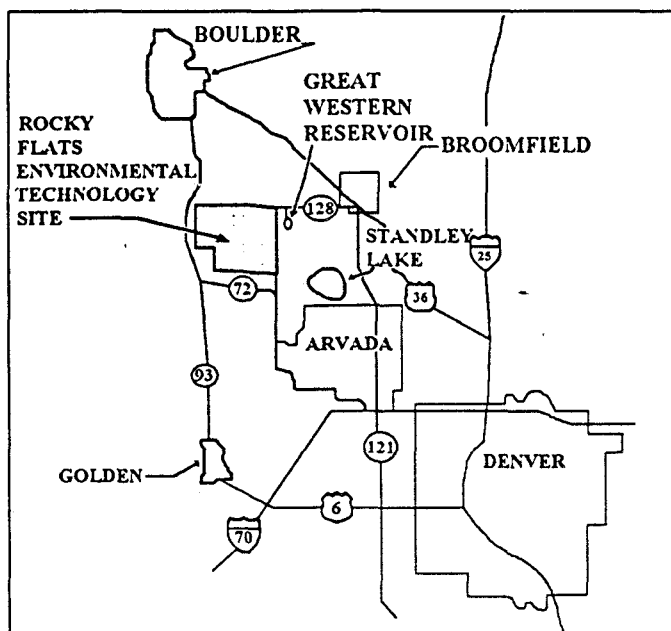
Citizens Advisory Board  
9035 N. Wadsworth Parkway  
Suite 2250  
Westminster, CO 80021

Standley Lake Library  
8485 Kipling Street  
Arvada, CO 80005

U.S. Environmental Protection Agency  
Superfund Records Center  
5th Floor  
999 18th Street  
Denver, CO 80202-2466

## SITE BACKGROUND

Rocky Flats is located in northern Jefferson County, Colorado (Figure 1). Rocky Flats occupies approximately 6,550 acres of Federal land and is a government-owned and contractor-operated facility that is part of the nationwide nuclear weapons production complex. DOE's former mission at Rocky Flats was to produce components for nuclear weapons from plutonium, uranium and non-radioactive metals. Its current mission is to manage wastes and materials and to cleanup and convert the Rocky Flats site to beneficial use in a manner that is safe, environmentally and socially responsible, physically secure and cost-effective.



**Figure 1**  
**Rocky Flats Environmental Technology Site and Vicinity**

Historical waste handling practices involved on-site storage, treatment and disposal of hazardous, *low-level radioactive* and *mixed wastes*. Most plant structures are located within the Rocky Flats Industrial Area, which occupies approximately 400 acres. This area is surrounded by a buffer zone of approximately 6,150 acres. IHSSs within Rocky Flats were defined and grouped into sixteen operable units (OUs). The Inside Building Closures, OU15, consists of six IHSSs and is the subject of this Proposed Plan.

OU15 was originally composed of eight IHSSs; however, IHSSs 212 and 215 are no longer included as part of the OU. The closure of IHSS 212 is now addressed in Part VIII of the Rocky Flats RCRA Mixed Residue Permit Modification. IHSS 215 was transferred to Operable Unit 9 (OU9) and has already been included in the Phase I RFI/RI for OU9. The six remaining OU15 IHSSs are:

- IHSS 178 - Building 881, Drum Storage Area (Room 165);
- IHSS 179 - Building 865, Drum Storage Area (Room 145);
- IHSS 180 - Building 883, Drum Storage Area (Room 104);

- IHSS 204 - Building 447, RCRA Unit 45, Original Uranium Chip Roaster (Rooms 32 and 502);
- IHSS 211 - Building 881, RCRA Unit 26, Drum Storage Area (Room 266B); and
- IHSS 217 - Building 881, RCRA Unit 32, Cyanide Bench Scale Treatment (Room 131C).

The following is a summary of the physical description and operational history of each hazardous substance site:

**IHSS 178, Building 881, Drum Storage Area (Room 165).** IHSS 178, which has a maximum storage capacity of five 55-gallon drums, was first used in 1953 when Building 881 operations began. The IHSS area consists of two painted circles, each approximately four feet in diameter. The drums stored in the IHSS contained wastes contaminated with solvents and possibly low-level radioactivity. Routine visual monitoring was conducted during the period of operation.

**IHSS 179, Building 865, Drum Storage Area (Room 145).** IHSS 179, which has a maximum storage capacity of ten 55-gallon drums, was first used for drum storage in 1970. The dimensions of the IHSS are approximately 8 feet by 12 feet. Drums stored in the IHSS contained oils, chlorinated solvents, low-level radioactive waste and possibly beryllium. The IHSS was monitored routinely for spills and releases.

**IHSS 180, Building 883, Drum Storage Area (Room 104).** IHSS 180, which has a maximum storage capacity of thirty 55-gallon drums, measures 10 feet by 16 feet and was first used for drum storage in 1981. Drums stored in the IHSS contained oils contaminated with solvents, uranium and beryllium. Visual monitoring of the storage area was conducted periodically.

**IHSS 204, Building 447, RCRA Unit 45, Original Uranium Chip Roaster (Rooms 32 and 502).** IHSS 204, the Original Uranium Chip Roaster, was used historically to oxidize uranium chips coated with small amounts of oils and coolants, converting the elemental uranium to uranium oxide. The unit is cylindrical with a diameter of 5 feet 6 inches and a height of 7 feet 4 inches. The inlet for the unit is located in Room 502 and the outlet is located directly downstairs in Room 32. No hazardous constituents have been treated in this unit since January 1988, when the uranium chips processed in the unit ceased to be coated with oils and coolants.

**IHSS 211, Building 881, RCRA Unit 26, Drum Storage Area (Room 266B).** IHSS 211, which has a maximum storage capacity of twenty-nine 55-gallon drums, was first used as a drum storage area in 1981. The dimensions of the IHSS are approximately 10 feet by 20 feet. The wastes stored in the unit have historically included low-level radioactive combustibles (rags, wipes, etc.), metals, glass and materials which contained solvents and/or metals generated by laboratories in the building.

**IHSS 217, Building 881, RCRA Unit 32, Cyanide Bench Scale Treatment (Room 131C).** IHSS 217 consists of a 4 feet by 5 feet painted metal fume hood and laboratory table, three

4-liter polyethylene bottles, a glass beaker and a chlorine-specific ion electrode. The unit was used as a bench scale treatment process to convert cyanide to cyanate. Aqueous cyanide solutions were transferred to the unit for analysis of cyanide content using a cyanide still. Wastes generated from this analysis were collected in the three 4-liter polyethylene bottles and stored in the steel fume hood of the unit. The cyanide solution was treated in one of the 4-liter bottles and then transferred via the process waste line system to the central liquid waste treatment facility in Building 374 for further treatment.

## SUMMARY OF SITE RISKS

The *risks* to human health and the environment associated with the OU15 IHSSs were characterized as part of the OU15 RFI/RI, which was completed in accordance with the requirements presented in the IAG and specifically identified in the Final Phase I RFI/RI Work Plan for OU15. The RFI/RI focused on two primary objectives: first, characterizing the nature and extent of contamination associated with the IHSSs inside the buildings; and second, evaluating the potential for

contaminant migration outside of the buildings. For each IHSS, the investigations involved reviewing historical information, conducting visual inspections and completing sampling and analyses for surface contamination. A detailed discussion of the methods and results is presented in the Final Phase I RFI/RI Report.

In order to determine if releases to the environment had occurred from the OU15 IHSSs, historical information on waste management practices in the IHSSs was reviewed and visual inspections of each IHSS were completed. These inspections focused on identifying evidence of spills or releases and assessing if potential routes existed for the migration of contaminants from the IHSSs to outdoor areas.

Samples were also collected in and around each IHSS and analyzed to characterize the presence or absence of hazardous and radiological constituents associated with the IHSSs. To evaluate risks to workers inside the buildings, the results of the sampling and analysis were compared to a set of protective standards approved as *Applicable or Relevant and Appropriate Requirements (ARARs)* in the Final Phase I RFI/RI Work Plan for OU15.

### What are ARARs?

The most important elements in determining the need for remedial action at a CERCLA site (or operable unit) are the overall protection of human health and the environment and compliance with the Applicable or Relevant and Appropriate Requirements (ARARs) selected for the site. ARARs represent a set of protective standards for the site. Applicable requirements are mandated by State or Federal law and specifically address factors such as contaminants and remedial actions. Relevant and appropriate requirements, while not legally applicable, address problems or situations that are similar to those at the site.

For OU15, ARARs were identified for both hazardous constituents (e.g., spent solvents, metals) and radionuclides. The ARARs used to evaluate hazardous constituents were the RCRA clean closure performance standards (6 Colorado Code of Regulations 1007-3, Section 265.111), which specify that the IHSSs must be closed in a manner that protects human health and the environment. The standards were satisfied when analytical results from the samples collected at each IHSS exhibited no traces of hazardous constituents historically managed in the IHSS.

The ARARs established for radionuclides at OU15 focused on the protection of workers in the IHSS areas and were based on Occupational Safety and Health Act standards for ionizing radiation. The specific standards are listed in the Code of Federal Regulations (CFR) and DOE orders, and are presented below:

10 CFR 20, App. B: Protection against radiation;

10 CFR 835: Occupational radiation protection;

29 CFR 1910.96: Ionizing radiation;

DOE Order 5400.5: Radiation protection of the public and the environment (will eventually be replaced by 10 CFR 834); and

DOE Order 5480.11: Radiation protection for occupational workers (to be replaced by 10 CFR 835, effective January 1, 1996).

Two additional standards being developed will also apply to OU15, and are listed below:

10 CFR 834: Radiation protection of the public and the environment; and

40 CFR 196: Radiation site cleanup regulations.

The sampling and analytical results demonstrate that the IHSSs are in compliance with the ARARs specified for hazardous constituents. No hazardous constituents associated with the management of wastes at OU15 were detected in the samples from the IHSSs.

IHSSs 178, 211, and 217 meet the Federal occupational radiation protection standards and pose no unacceptable risk to workers. Based on the contamination levels present at these IHSSs, specific radiological controls are not necessary to meet the worker dose limit standards. IHSSs 179, 180, and 204 are located within radiological control areas, and subject to the procedures presented in the shaded box below.

The results of the sampling and analysis, along with the review of historical records and the visual inspections, indicate that there have not been releases of either hazardous constituents or radiological contamination to the environment external to the buildings containing the OU15 IHSSs. The radiological control program for IHSSs 179, 180, and 204 will assure that no contaminants are released from the buildings. Therefore, these three IHSSs pose no risk to human, plant and animal populations outside of their respective buildings.

## SUMMARY OF REMEDIAL ALTERNATIVE

The preferred alternative proposed in this plan for OU15 consists of the following actions: 1) Clean Closure under RCRA for all six of the OU15 IHSSs; 2) a No Action CERCLA decision for IHSSs 178, 211, and 217; and 3) a deferral of any actions at IHSSs 179, 180, and 204 until final disposition of their respective buildings.

Clean closure under RCRA can be concluded since all six IHSSs meet the clean closure requirements of the Rocky Flats RCRA Permit. Closure certifications for the six IHSSs, signed by an independent registered professional engineer, have already been submitted to CDPHE. The No Action CERCLA decision for IHSSs 178, 211, and 217 is based upon the *National Oil and Hazardous Substances Contingency Plan*, which provides for the selection of a No Action alternative when a site or OU is already in a protective state.

### The Radiological Control Program

In order to protect individuals at DOE sites and facilities from exposure to radiation and radioactive materials, DOE established practices for the conduct of radiological operations in DOE orders, including 5400.5 and 5480.11. The radiation protection standards for workers were subsequently promulgated as a Federal regulation in 10 CFR 835, under the authority of the Atomic Energy Act. To meet the requirements of this regulation, DOE developed a department-wide Radiological Control Manual. For Rocky Flats, a site-specific Radiological Control Manual has been developed, along with a series of procedures that provide direction for day-to-day activities at the site.

Access to radiation and radioactive materials in Rocky Flats production/processing buildings is managed using the following area designations: uncontrolled, controlled and radiological. The requirements for entering and working within each area are progressively more restrictive and protective. Uncontrolled areas consist of offices, locker rooms and other non-radiological laboratories and process areas and do not require radiological controls. Controlled areas are physically separated from uncontrolled areas and typically encompass large process and storage areas. They do not, themselves, constitute a significant exposure threat to individuals, but instead, identify general areas where radiological operations have been or are being conducted. In contrast, radiological areas, such as Radiation Areas and Contamination Areas, are discreet areas within larger controlled areas that, based on past or current operations, contain specific radiation or radiological hazards.

The requirements that apply for individuals entering and working in controlled and radiological areas are presented in the Rocky Flats Radiological Control Manual and in specific Rocky Flats operating procedures. They encompass training, access control, work control, protective clothing, respiratory protection, radiation monitoring and radiation dose limits. The requirements are selected and implemented for each area based on the type of area, the levels of radiation and contamination and the hazards present. The controls necessary to protect individuals from occupational exposures in work areas at Rocky Flats, such as the OU15 IHSSs, are continuously reviewed and modified as needed, based on changing requirements and conditions in the work areas. In addition, the Rocky Flats radiological control program includes provisions for recordkeeping, reporting and program assessment. All six of the OU15 IHSSs fall under the requirements of the Rocky Flats radiological control program, although only IHSSs 179, 180, and 204 are located within controlled areas.

As a matter of policy, DOE is also committed to limiting personal radiation exposure to levels As Low As Reasonably Achievable. DOE specifies that radiation exposure of the work force and public should be controlled such that exposures are well below regulatory limits. DOE also states that there should not be any radiation exposure to workers without the expectation of an overall benefit from the activity causing the exposure.

IHSSs 179, 180, and 204 are within radiological control areas at Rocky Flats and actions at these IHSSs are deferred until final disposition of the buildings in which they are located.

## GLOSSARY

**Applicable or Relevant and Appropriate Requirements (ARARs):** Media-specific (e.g., soil, water) concentration limits or other standards developed for a variety of contaminants including hazardous and radioactive constituents. ARARs are based on an evaluation of several factors including land use, potentially exposed populations and State and Federal regulations and guidance documents.

**Comprehensive Environmental Response, Compensation and Liability Act (CERCLA):** A Federal law passed in 1980 that establishes a program to identify abandoned hazardous waste sites, ensures that they are cleaned up, evaluates damages to natural resources and creates claims procedures for parties who cleaned up the sites. The scope of CERCLA was expanded in 1986 by the Superfund Amendments and Reauthorization Act, which, among other things, guarantees greater public input and involvement in remedy selection and cleanup activities.

**Individual Hazardous Substance Site (IHSS):** An area which is identified for investigation as a result of previous operations and disposal practices.

**Interagency Agreement (IAG):** The January 22, 1991 document prepared by representatives from DOE, EPA and CDPHE. It presents the objectives and general protocols for addressing the cleanup or evaluation of each of the operable units at the Rocky Flats Environmental Technology Site.

**Low-level Radioactive Waste:** Material having no economic value that is contaminated with transuranic elements (i.e., americium and plutonium) at a level of specific activity less than or equal to 100 nanoCuries per gram of waste material, or wastes contaminated with uranium in any quantity.

**Mixed Waste:** Waste that contains both hazardous constituents and radioactive contaminants.

**National Oil and Hazardous Substances Contingency Plan (NCP):** Federal regulations (40 CFR Part 300) that implement the requirements of CERCLA. The NCP sets forth a hazard ranking system and procedures and standards for responding to hazardous releases.

**Operable Unit (OU):** A term used to describe a certain portion of a CERCLA site. An operable unit may be established based on a particular type of contamination, contaminated media (e.g., soil, water), source of contamination and/or geographical location.

**Preferred Alternative:** The protective, ARAR-compliant approach that is judged to provide the best balance of tradeoffs with respect to long- and short-term effectiveness, implementability, cost and the reduction of contaminant toxicity, mobility, or volume through treatment.

**Protective State:** In compliance with relevant State and Federal requirements for protection of public health and the environment.

**Record of Decision:** A public decision document that presents the cleanup alternative(s) selected for a CERCLA site. It is based on information from the Remedial Investigation and Feasibility Study, public comments and community concerns.

**RCRA Facility Investigation/Remedial Investigation (RFI/RI):** An environmental and site impacts study conducted to satisfy the requirements of RCRA and CERCLA.

**Resource Conservation and Recovery Act (RCRA):** A Federal law passed in 1976 that is designed to require the "cradle-to-grave" management of hazardous waste. CDPHE, through the Hazardous Materials and Waste Management Division, implements RCRA in Colorado. CDPHE has issued a RCRA operating permit for Rocky Flats.

**Risk:** The likelihood of an adverse effect on the health of a human or ecological population as a result of exposure to chemical or radiological constituents.

If you did not receive this Proposed Plan in the mail and would like to be included in the mailing list for future information, please mail this completed form to:

DOE's External Affairs Office  
P.O. Box 928  
Golden, CO 80402-0928

or

W. Carl Spreng, Geologist  
Colorado Department of Public  
Health and Environment/HMWMD-HWC-B2  
4300 Cherry Creek Drive South  
Denver, CO 80222-1530

Name \_\_\_\_\_

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Affiliation (if any) \_\_\_\_\_

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